[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 72 and 73

[NRC-2009-0558]

Draft Technical Basis for Rulemaking Revising Security Requirements for Facilities Storing SNF and HLW; Notice of Availability and Solicitation of Public Comments

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of availability and request for public comment.

SUMMARY: The Nuclear Regulatory Commission (Commission or NRC) is seeking input from the public, licensees, certificate holders, and other stakeholders on a draft technical basis for a proposed rulemaking that would revise the NRC's security requirements for the storage of spent nuclear fuel (SNF) at an Independent Spent Fuel Storage Installation (ISFSI) and the storage of SNF and/or high-level radioactive waste (HLW) at a Monitored Retrievable Storage Installation (MRS). This contemplated rulemaking would also make conforming changes to the ISFSI and MRS licensing requirements for security plans and programs. The NRC has developed a draft technical basis for this proposed rulemaking that describes the agency's overall objectives, conceptual approaches, potential solutions, integration with agency strategic goals, and related technical and regulatory clarity issues. The NRC is soliciting comments on this draft technical basis document from the public, licensees, and other stakeholders to confirm that an adequate technical basis exists to proceed with rulemaking to issue new risk-informed and performance-based security regulations for SNF and HLW storage facilities.

The NRC will conduct a public Webinar on January 14, 2010, to discuss this draft technical basis and to facilitate the public's and stakeholder's submission of informed comments.

DATES: Comments on this draft technical basis should be submitted by January 31, 2010. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date.

Public Meeting: The NRC will also take public comments on this draft technical basis at a public webinar on January 14, 2010.

ADDRESSES: You may submit comments by any one of the following methods. Please include Docket ID **NRC-2009-0558** in the subject line of your comments. Comments submitted in writing or in electronic form will be posted on the NRC website and on the Federal e-Rulemaking website at http://www.regulations.gov. Because your comments will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed.

The NRC requests that any party soliciting or aggregating comments received from other persons for submission to the NRC inform those persons that the NRC will not edit their comments to remove any identifying or contact information, and therefore, they should not include any information in their comments that they do not want publicly disclosed.

To ensure efficient and complete comment resolution, comments should include references to the section and page numbers of the document to which the comment applies, if possible. When commenting on the technical basis, please exercise caution and do not include any site-specific security-related information.

Federal Rulemaking Website: Go to http://www.regulations.gov and search for documents filed under Docket ID **NRC-2009-0558.** Address questions about NRC dockets to Carol Gallagher 301-492-3668; e-mail Carol.Gallagher@nrc.gov.

Mail comments to: Michael T. Lesar, Chief, Rulemaking and Directives Branch (RDB), Division of Administrative Services, Office of Administration, Mail Stop: TWB-05-B01M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by fax to RDB at (301) 492-3446.

You can access publicly available documents related to this notice using the following methods:

NRC's Public Document Room (PDR): The public may examine and have copied, for a fee, publicly available documents at the NRC's PDR, Public File Area O-1F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland.

NRC's Agencywide Documents Access and Management System (ADAMS): Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html. From this page, the public can gain entry into ADAMS, which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The draft technical basis to revise the security requirements for facilities storing SNF and HLW is available electronically under ADAMS Accession No. ML093280743.

Federal Rulemaking Website: Public comments and supporting materials related to this notice can be found at http://www.regulations.gov by searching on Docket ID: **NRC-2009-0558.**

FOR FURTHER INFORMATION CONTACT: Philip Brochman or Rupert (Rocky) Rockhill, Office of Nuclear Security and Incident Response, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone (301) 415-6557; e-mail: Phil.Brochman@nrc.gov; or (301) 415-3734; e-mail Rupert.Rockhill@nrc.gov, respectively.

SUPPLEMENTARY INFORMATION:

Background

The NRC requires high assurance of adequate protection of public health and safety, the common defense and security, and the environment for the secure storage of SNF and HLW. The NRC meets this strategic goal by requiring ISFSI licensees to comply with security requirements specified in Title 10 of the Code of *Federal Regulations*, Part 73 (10 CFR Part 73), "Physical Protection of Plants and Materials." Following the terrorist attacks of September 11, 2001, the NRC has continued to achieve this requisite high assurance for all facilities licensed to store SNF through a combination of these existing security regulations and the issuance of security orders to individual licensees. These orders ensured that a consistent overall protective strategy is in place for all types of ISFSIs, given the current threat environment. The NRC has not issued any licenses for an MRS, nor are any applications for a license for an MRS pending before the NRC. The issuance of these security orders was noticed in the *Federal Register* on October 23, 2002 (see 67 FR 65150 and 67 FR 65152) for existing licensees. Subsequent to the issuance of these orders to all existing ISFSI licensees, the NRC periodically issued these same security orders to all new ISFSI licensees, before such facilities commenced operation. The NRC also noticed the issuance of these subsequent orders in the *Federal Register*.

Following the terrorist attacks of September 11, 2001, the NRC completed security assessments for a range of NRC-licensed facilities. For ISFSIs, the NRC's assessments were

accomplished during 2003 to 2005 and evaluated several types of dry storage cask designs that were viewed as being representative of the entire population of dry storage ISFSIs. These assessments evaluated both attacks using large aircraft and ground assaults using a variety of methods. The results of assessments indicated that no significant vulnerabilities were indicated and thus no immediate changes in the security requirements for ISFSIs were necessary. However, the assessments did challenge previous NRC conclusions on the ability of a malevolent act to breach shielding and/or confinement barriers and thus release radiation or radioactive material; and indicated that increased security requirements were warranted over the longer term. Because these assessments discuss vulnerability information, and thus could be used as potential targeting tools, they are not publicly available.

Finally, the current security regulations for ISFSIs are quite complex and pose challenges both to NRC staff and to the regulated industry. This regulatory complexity is due to multiple factors, including: two different types of ISFSI licenses (general and specific licenses) under 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste," and varying applicability of regulations based upon whether the ISFSI is collocated with an operating power reactor, collocated with a decommissioning power reactor, or is located away from any power reactors. In response to the new information gained from these security assessments and in recognition of the existing regulatory challenges, the NRC staff presented policy paper SECY-07-0148; dated August 28, 2007, to the Commission to address these issues (a redacted version of this policy paper is publicly available under ADAMS Package No. ML080030050 in NRC's Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html.). This policy paper summarized the current regulatory structure for ISFSI security, analyzed several policy and process issues, and provided recommendations in order to obtain early Commission direction on the development of an ISFSI security rulemaking. In a Staff Requirements

Memorandum (SRM-SECY-07-0148), the Commission directed the NRC staff to proceed with the development of a proposed rulemaking that uses a risk-informed and performance-based approach for these facilities (ADAMS Accession No. ML073530119). The NRC has recently completed the draft technical basis to support this rulemaking. Because of the importance of this regulation, the staff has decided to release the technical documentation for public comment. With this approach, the NRC can address stakeholder questions and respond to comments early in the process. In addition, the staff will hold a public Webinar on January 14, 2010, to discuss this draft technical basis and to facilitate the public's and stakeholder's submission of informed comments.

I. Rulemaking Objectives

The NRC's specific objectives for this rulemaking are to:

(1) Update the ISFSI and MRS security requirements to improve the consistency and clarity of the Part 73 regulations for both types of ISFSI licenses (i.e., general and specific), to reflect the Commission's current thinking on security requirements, and to incorporate lessons learned from security inspections and Force-on-Force (FOF) evaluations conducted (on reactor sites) since the ISFSI security regulations were last updated in the 1990s;

(2) Make generically applicable requirements similar to those imposed on ISFSI licensees by the post-9/11 ISFSI security orders; and

(3) Use a risk-informed and performance based structure in updating the ISFSI and MRS security regulations.

Additionally, one of the issues raised in a petition for rulemaking submitted by the C-10 Research and Education Foundation, Inc. (PRM-72-6) may be relevant to this rulemaking. The NRC published a notice of receipt and request for comment on PRM-72-6 in the *Federal Register* on March 3, 2009 (74 FR 91718).

Objective One – Consistency

The first objective is to propose a set of security requirements that will achieve consistent outcomes across the wide range of SNF and HLW storage facilities that either exist today, or could be licensed by the NRC under Part 72 in the future. The existing ISFSI and MRS security regulations in Part 73 are unnecessarily complex; have not been updated in more than a decade; and are challenging for the NRC staff, licensees, applicants, and other stakeholders to understand and apply. Accordingly, the rulemaking would–

(1) Create a more consistent and coherent regulatory structure for these types of waste storage facilities; and thereby improve agency transparency, regulatory clarity, and the ease of use of these regulations;

(2) Propose security requirements that are consistent with the Commission's recent final rule updating the security requirements for nuclear power reactors (see 74 FR 13925; March 29, 2009);

(3) Propose security requirements that address lessons learned during the course of previous NRC inspections and FOF exercises held since the ISFSI security regulations were last updated; and lessons learned during licensing reviews of all of the power reactor security plans that were conducted in 2003 and 2004 (following the issuance of security orders to reactor licensees).

*Objective Two – Generic Applicability of Security Order*s

The second objective is to make the appropriate provisions of the security orders issued by the NRC to ISFSI licensees following the terrorist attacks of September 11, 2001, generically applicable. This includes both the initial security orders issued in 2005 and subsequently updated security orders issued in 2007. The NRC is proposing to make provisions of these orders generically applicable in the proposed rulemaking and thus to decontrol non-sensitive requirements to increase agency transparency and regulatory clarity. Additionally, measures

such as vehicle barrier systems would be added to the regulations in Part 73. Finally, the NRC would also address lessons learned in inspecting the imposition of these security orders.

Objective Three – Use a Risk-Informed and Performance Based Structure

Under this approach, NRC is proposing to establish a security-based dose limit in Part 73 that has the same values as found under the current limits for safety-related accidents in 10 CFR Part 72. The requirement for licensees to specify a controlled area boundary and to meet a "5-Rem" dose limit for design basis accidents is specified in the current 10 CFR 72.106.[1] Licensees would use the information supplied by the NRC in combination with information specific to their facility (e.g., distance from the ISFSI or MRS to the controlled area boundary, specific storage cask type, specific fuel burn-up (i.e., radionuclide inventory), and distance to the facility's site boundary) to calculate the potential dose and to verify that a 0.05-Sv (5-Rem) dose limit to be included in Part 73, has been met. The NRC envisions that licensees would use an iterative process that considers changes to parameters (e.g., distance to the controlled area boundary) in order to meet the 0.05-Sv (5-Rem) security dose limit. Licensees who could not meet the 0.05-Sv (5-Rem) dose limit (either with their current facility or by expanding the controlled area boundary of their facility) would be required to consider other options. These options could include increasing the size of the licensee's facility, using engineered security barriers and features to prevent a specific "security scenario," if possible, or shifting to a "denial" protective strategy to prevent the specific "security scenario" from succeeding.

ISFSI and MRS licensees would also be required to evaluate the effects from the detonation of both a land-based or waterborne vehicle bomb attack (the size of the explosive and the vehicle characteristics would be specified by the NRC) against the SNF or HLW storage

[1] The dose criteria in 10 CFR 72.106 includes separate limits of 0.05 Sv (5 Rem) total effective dose equivalent; 0.15 Sv (15 Rem) to the lens of the eye; and 0.5 Sv (50 Rem) as either the sum of the deep dose equivalent and any organ dose, or the shallow dose equivalent to the skin or any extremity. Collectively, these values are hereinafter referred to as the 0.05-Sv (5-Rem) dose limit.

casks, facility, or pool; against the facility's central and secondary alarm stations; against security personnel defensive positions (if the licensee employs a denial protective strategy); and against a transfer container if the transfer pathway is not protected by a temporary or permanent vehicle barrier system. ISFSI and MRS licensees would be required to design, install, and implement a vehicle barrier system (which may include the use of landform obstacles) to mitigate the effects of a land-based or, if applicable, a waterborne, vehicle bomb attack.

In implementing this new risk-informed and performance-based approach for ISFSI and MRS security, the NRC would discontinue the application of the design basis threat (DBT) for radiological sabotage to general license ISFSIs. The current regulations only apply the DBT for radiological sabotage to general license ISFSIs. This is an example of inconsistent treatment of ISFSIs and MRSs. The Commission had previously indicated that the issue of whether or not to apply the DBT for radiological sabotage to all ISFSIs (and thus to MRSs as well) would be addressed in a future rulemaking. [2]

In developing this risk-informed and performance-based approach, the NRC staff also considered the findings and recommendations contained in the National Academy of Sciences' (NAS') National Research Council report on "Safety and Security of Commercial Spent Nuclear Fuel Storage: Report to Congress," dated July 2004 (particularly those findings and recommendations contained in sections 4 and 5 of the NAS report). This report contains classified national security information and is not publicly available. Additionally, in 2006, the NAS published a redacted version of this study titled "Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report." This study is available from the NAS for a fee (see the NAS Website at http://www.nap.edu/catalog.php?record_id=11263#toc). The NAS study was

[2] Final rule - 10 CFR Part 73, "Design Basis Threat," published on March 19, 2007 (72 FR 12705), see response to public comment Issue 5 (at 72 FR 12716).

based, in part, upon the results of the NRC's 2003 to 2005 security assessments on four representative dry SNF storage systems.

Petiton for Rulemaking (PRM-72-6)

Petition for rulemaking (PRM-72-6), item number 11, requests that the NRC "… require Hardened On-site Storage (HOSS) at all nuclear power plants as well as away–from-reactor dry cask storage; that all nuclear industry interim on-site or off-site dry cask storage installations or ISFSIs be fortified against attack." Consequently, item 11's technical content appears to be relevant to the scope of the proposed rulemaking and it is mentioned in the draft technical basis. Therefore, the NRC may consider this petition in the course of developing the proposed rule. However, the NRC has not yet reached a decision on acceptance of this petition and this notice does not prejudge the agency's final action on whether to accept the requests in PRM-72-6.

II. Specific Proposal

The draft technical basis supports a forthcoming proposed revision to the current regulations in 10 CFR Parts 72 and 73, and adding new regulations in 10 CFR Part 73. This draft technical basis will be used by the NRC to develop a proposed rulemaking revising the security requirements for facilities storing SNF and/or HLW. The NRC notes that the public, licensees, certificate holders, and other stakeholders will have a future opportunity to comment on the proposed rulemaking when that document is published in the *Federal Register*.

This draft technical basis does not include any revisions to the security requirements that are applicable to a geologic repository operations area that would be licensed under 10 CFR Parts 60 or 63 (see separate proposed rule 72 FR 72521; December 20, 2007).

III. Availability of Documents.

The following table indicates the draft technical basis and related documents that are available to the public and how they may be obtained. See the ADDRESSES section above for information on the physical locations and web sites to access these documents.

Document	PDR	Web	Electronic Reading Room (ADAMS)
Draft Technical Basis, Revision 1 (December 2009)	x	x	ML093280743
Commission: SECY-07-0148 (redacted) (August 28, 2007)	x	x	ML080030050
Commission: SRM-SECY-07-0148 (December 18, 2007)	x	x	ML073530119

IV. Specific Considerations and Questions

The NRC requests public comments on this draft technical basis by the DATES section specified above. The NRC has not identified any specific questions for public and stakeholder input.

Dated at Rockville, Maryland, this 8 day of December 2009.

For the Nuclear Regulatory Commission.

/RA/

Richard P. Correia, Director
Division of Security Policy
Office of Nuclear Security and Incident Response

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Draft Technical Basis, Revision 1 (December 2009)	x	x	ML093280743
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/RA/

Richard P. Correia, Director
Division of Security Policy
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